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Benefits and Burdens: The Role of Trait Gratitude in Positive and Negative Exchanges in
Friendships

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Abstract

Objective: This study examined the effects of trait gratitude on relationship satisfaction amongst friends through two potential mechanisms – perceived fulfillment of positive expectations and perceived burden of negative exchanges. The study also aimed to examine whether grateful people over-perceive the benefits received from friends. **Method:** 101 pairs of same-sex friends were recruited from Singapore Management University to take part in a dyad study. Participants were asked to rate their relationship expectations, *and* the benefits received and performed for their partner. Participants were also asked to rate their tolerance, *and* the burdens caused by and imposed on their partner. **Results:** Trait gratitude was positively associated with perceived benefits and relationship expectations. In addition, grateful people tended to over-perceive benefits received from their partners. Trait gratitude was also negatively associated with perceived burdens and grateful people were more likely to under-perceive burdens received from their partners. **Conclusions:** The findings of this study suggest how grateful people experience greater relationship satisfaction. Other proposed implications include the role of expectations and perceptual illusions in relationships satisfaction.

Keywords: trait gratitude, relationship expectations, relationship satisfaction, positive and negative social exchanges.

Personality traits, mostly notably extraversion and agreeableness, are associated with relationship satisfaction (Heller, Watson, & Ilies, 2004; Malouff, Thorsteinsson, Schutte, Bhullar, & Rooke, 2010; Tov, Nai, & Lee, 2016). Other personality traits associated with relationship satisfaction include forgiveness (Allemand, Amberg, Zimprich, & Fincham, 2007; Kachadourian, Fincham, & Davila, 2004) and neuroticism (Fisher & McNulty, 2008; Malouff et al., 2010). Although there is extensive research linking personality to relationship satisfaction, more is needed on the processes by which traits influence satisfaction.

This study will focus on trait gratitude and relationship satisfaction amongst friends. I view trait gratitude as the tendency to experience feelings of appreciation and thankfulness for the benefits received from others (McCullough, Emmons, & Tsang, 2002). However, because there is a lack of direct evidence on the relation between trait gratitude and relationship satisfaction and because trait gratitude is directly predictive of the frequency of state gratitude experienced (McCullough et al., 2002; McCullough, Tsang, & Emmons, 2004), I review the literature on state gratitude.

Several studies have focused specifically on the effects of grateful feelings on relationship building (Algoe, Gable, & Maisel, 2010; Algoe, Haidt, & Gable, 2008; Bartlett, Condon, Cruz, Baumann, & DeSteno, 2012; Lambert, Clark, Durtschi, Fincham, & Graham, 2010; Lambert & Fincham, 2011; Williams & Bartlett, 2014) and maintenance (Gordon, Impett, Kogan, Oveis, & Keltner, 2012; Gordon, Arnette, & Smith, 2011). State gratitude is frequently associated with relationship maintenance behaviors including performing favors for the relational partner (McCullough, Kilpatrick, Emmons, & Larson, 2001; McCullough, Kimeldorf, & Cohen, 2008) and repaying them for their favors (Bartlett & DeSteno, 2006; Tsang, 2006a, 2006b, 2007). Experiencing gratitude towards a benefactor also promotes social affiliation (Bartlett et al., 2012;

Williams & Bartlett, 2014), and voicing concerns in relationships (Lambert & Fincham, 2011), which further promotes relationship development.

State gratitude is not just associated with behaviors, but also particular kinds of attributions and beliefs. Beneficiaries who experienced more gratitude towards their benefactors desire to spend more time with them (Algoe et al., 2008; Williams & Bartlett, 2014), perceive their benefactors as friendlier (Williams & Bartlett, 2014) and more responsive to their needs (Algoe et al., 2008). People who experience gratitude also perceive their benefactors as more supportive (Algoe & Stanton, 2012; Kong, Ding, & Zhao, 2014; Wood, Maltby, Gillett, Linley, & Joseph, 2008a), and judge their relationship as close (Algoe & Haidt, 2009). Thus, experiencing gratitude influences the way people perceive others and cognitively evaluate their relationships.

The evidence gathered so far is specific to state gratitude. Although state gratitude is an important response to single episodes of relationship behaviors (Algoe et al., 2008), past research shows that there are stable individual differences in the tendency to experience gratitude (McCullough et al., 2002; McCullough et al., 2004). *Grateful people* (those who are high on trait gratitude) are more likely to experience state gratitude more frequently compared with *ingrates* (those who are low on trait gratitude). If grateful people tend to experience gratitude more frequently, they should exhibit the same perceptual tendencies that arise from state gratitude. These stable differences are important in the context of long-term relationships like friendships that involve repeated interactions as opposed to single episodes. For example, grateful people may be more likely to perceive greater support from and closeness to their friends compared with ingrates. Whereas state gratitude may influence such perceptions in a given moment, trait gratitude may predict the persistence of such perceptions over the long run. Therefore, trait

gratitude may provide a more consistent and stable basis for relationship satisfaction as opposed to state gratitude.

Relationship satisfaction is a judgment driven by the discrepancy between the benefits expected in a relationship and those that are received. I refer to this discrepancy as perceived fulfillment. A relationship is judged as satisfying when one's perceived fulfillment matches or exceeds one's expectations for the relationship (Hall, 2014; Hall & Baym, 2011; Hall, Larson, & Watts, 2011). I hypothesize that trait gratitude influences relationship satisfaction by shaping one's perceived fulfillment. As grateful people are prone to experiencing state gratitude, which in turn should influence their cognitive evaluations, I believe trait gratitude will be predictive of relationship satisfaction via increased perceived fulfillment. This may occur because grateful people may either have (a) lower expectations, (b) perceive higher levels of benefit, or both. In the following sections, I will review the literature and explain why trait gratitude predicts increased perceived fulfillment, which in turn, leads to relationship satisfaction.

Literature Review

Relationship Satisfaction and Perceived Fulfillment

Satisfaction is a cognitive judgment process that involves comparing one's current circumstance against what one believes is an appropriate standard (Diener, Emmons, Larsen, & Griffin, 1985). Michalos (1985) has identified three standards of comparison in his Multiple Discrepancies Theory (MDT) - (a) what one wants, (b) what relevant others have and (c) the best one has had in the past. The difference between one's current circumstance and these standards are referred to as discrepancies. Of the three standards in the MDT, the discrepancy between one's current circumstance and what one wants is most predictive of satisfaction (Michalos, 1983) as it is indicative of goal achievement. For instance, people who want to be wealthy and have

achieved financial success would be more satisfied of their achievement than others who do not view financial success as a goal. In this paper, I refer to what people want as their “expectations”.

Specifically for relationships, this standard is referred to as *relationship expectations*.

Relationship expectations are cognitive conceptualizations of idealized behaviors that individuals would like their relational partner to enact (Hall, 2012). Therefore, relationship expectations are a representation of what people want in a relationship, and have been found to play an important role in the formation (La Gaipa, 1987), maintenance (Oswald, Clark, & Kelly, 2004) and dissolution (Clark & Ayers, 1993) of relationships. Relationship expectations would be the standard this study used to assess people’s perceived fulfillment of their friendship.

This study focuses specifically on the perceived fulfillment of relationship maintenance behaviors. Maintenance behaviors include routine and strategic actions that relational partners engage in to continue and develop the relationship (Oswald et al., 2004), and are the “benefits” this study focuses on. These behaviors play an important role in maintaining the relationship at a satisfying and committed level. A meta-analysis of relationship expectations in friends by Hall (2012) identified six domains, four of which involved relationship maintenance behaviors such as symmetrical reciprocity (e.g., performing favors for each other), enjoyment (e.g., having fun together), similarity (e.g., sharing of common beliefs and activities) and communion (e.g., self-disclosure of problems). The Ideal Standards Model (Fletcher, Simpson, Thomas, & Giles, 1999), a validated model of relationship expectations, also identifies behaviors such as providing support and respect as important contributors to relationship satisfaction. Past results have also shown that perceived fulfillment of maintenance behaviors lead to greater relationship satisfaction (Fletcher et al., 1999; Hall & Baym, 2011; Hall et al., 2011). Thus, despite the

variety of relationship expectations, those concerning maintenance behaviors are likely to be the most pertinent for relationship satisfaction.

Operationalizing perceived fulfillment. Perceived fulfillment refers to the discrepancy between the benefits received in a relationship (the current circumstance) and the benefits expected (standard of comparison). Past studies have operationalized perceived fulfillment as a single construct (Dainton, 2000; Hall et al., 2011). However, this operationalization limits the understanding of how both components are associated with perceived fulfillment. In order to develop a better understanding of the association between each component in perceived fulfillment, the current study operationalizes perceived fulfillment as shown below:

$$\text{Perceived Fulfillment} = \text{Perceived benefits} - \text{Expectations} \quad (1)$$

where (a) perceived benefits refers to how often the partner enacts benefits *from the actor's perspective* and (b) expectations refers to how much benefit the actor desires from the partner. Based on this equation, when perceived fulfillment equals zero, the relationship is in a state of balanced fulfillment. That is, the actor's expectations are adequately met by the partner. When perceived fulfillment is positive (i.e., > 0), the actor's expectations are over-fulfilled by the partner. In both cases, the relationship is more likely to be judged as satisfying (Hall, 2014; Hall et al., 2011). When perceived fulfillment is negative (i.e., < 0), the actor's expectations are under-fulfilled by the partner. In such instances, the relationship is more likely to be judged as dissatisfying (Hall, 2014; Hall & Baym, 2011).

Trait gratitude, perceived fulfillment and relationship satisfaction

As perceived fulfillment involves the discrepancy between perceived benefits and one's expectations, individual differences in perceived fulfillment could reflect variation in either component. For example, an actor who is over-fulfilled may either (a) perceive high benefits or

(b) possess low expectations, or both. I believe that trait gratitude may influence both components.

Perceived benefits. Experiencing gratitude causes people to believe that their benefactors are more thoughtful (Algoe et al., 2008), warm (Williams & Bartlett, 2014) and socially supportive (Algoe & Stanton, 2012; Kong et al., 2014; Wood et al., 2008a). Furthermore, experiencing gratitude causes a positive bias in subsequent judgments of the benefactor (Algoe & Haidt, 2009), fostering a belief that the benefactor is responsive towards their needs and preferences (Algoe et al., 2008).

Research has also found that grateful people perceive situations differently from ingrates. Trait gratitude involves the tendency to both *recognize* gratitude-eliciting events and *respond* with grateful emotion (McCullough et al., 2002). Wood, Maltby, Steward, Linley, and Joseph (2008b) presented participants with vignettes in which they received benefits from another. Participants judged the (a) value of the benefit, (b) cost invested by the benefactor, and (c) how genuinely helpful they perceived the benefactor. Grateful people made more positive appraisals than ingrates. Results were replicated in a diary study that replaced vignettes with participant reports of daily situations where they received benefits. Similar to past research on state gratitude (e.g., Algoe & Stanton, 2012; Simao & Seibt, 2014; Williams & Bartlett, 2014), trait gratitude seems to involve a positive bias in cognitive judgments. If grateful people tend to perceive others as more helpful, responsive, and supportive, trait gratitude should be positively associated with perceived benefits.

H1: Grateful people will perceive greater benefits from their friend compared with ingrates.

Trait gratitude and relationship expectations. Relationship expectations are the standard to which all perceived benefits are compared against, for the individual to evaluate his (her) perceived fulfillment. Prior research suggests that overly high expectations tend to be associated with relationship dissatisfaction (Epstein & Eidelson, 2007; Hall, 2014; Hall & Baym, 2011). Overly high expectations are harder to fulfill and pose substantial stress on one's partner. In contrast, low expectations are much easier to fulfill; as even little gestures can be perceived as meeting or exceeding expectations.

Little research has examined grateful *people's* relationship expectations. However, it is known that state gratitude is enhanced when benefactors are perceived to be acting beyond what is *expected* of them (McCullough et al., 2001; McCullough et al., 2008). The previous finding may highlight a possible mechanism by which grateful people sustain chronic levels of grateful emotion. That is, grateful people may frequently experience state gratitude in part because they expect less of others than ingrates. Hence, any gesture received is more likely to exceed their expectations, resulting in greater levels of state gratitude.

H2: Grateful people would have lower expectations compared with ingrates.

If grateful people tend to perceive greater benefits from their partners (H1) and have lower expectations than ingrates (H2), they should also have greater perceived fulfillment (Equation 1). The latter, in turn, should be associated with greater relationship satisfaction, given the importance of expectations and positive maintenance behaviors (Fletcher et al., 1999; Hall, 2014; Hall & Baym, 2011). Thus, one reason why grateful people may be more satisfied than ingrates is their tendency to perceive greater fulfillment in their relationships.

H3: The relation between trait gratitude and relationship satisfaction is mediated by perceived fulfillment.

Perceived benefits as partly illusory. Actions performed by the partner are a form of reality. A partner who is actually helpful and supportive will perform positive maintenance behaviors more frequently than one who is not supportive. However, how these actions are perceived by the actor may also affect satisfaction. Hence, perceived benefit is dependent on (a) the actual behavior of the relational partner and (b) on the actor's perception of the behavior.

As hypothesized in H1, grateful people perceive greater benefits from their friends as compared with ingrates. Prior research also suggests that grateful people tend to perceive greater effort and investment from benefactors (Wood et al., 2008b). A plausible explanation for these perceptions is that grateful people actually do receive more support from others—perhaps through a cycle of reciprocity. For example, state gratitude drives reciprocation towards the benefactor (Algoe & Haidt, 2009; Bartlett & DeSteno, 2006; Tsang, 2006a, 2006b, 2007). Hence, grateful people may be more likely to perform favors (even at a higher cost) to repay their benefactors. Upon receiving these favors, benefactors may reciprocate further. This cycle of giving and receiving suggests that grateful people may actually receive more benefits from others than ingrates.

However, another possibility is that the perception of support is illusory. That is, grateful people may over-perceive the support they receive. If grateful people have the tendency to over-perceive support from others, it can be suggested that the effects of gratitude on relationship satisfaction may involve a subjective, perceptual bias. Support for this view comes from a study on daily gratitude by McCullough et al. (2004). Trait gratitude predicted daily gratitude even after controlling for the frequency of concrete “gratitude episodes.” This implies that grateful people can experience gratitude independently of the specific benefits they receive from others. In addition, given the same scenario, grateful people tend to believe that their benefactors

invested more effort in delivering benefits to them compared with ingrates (Wood et al., 2008b). This further suggests that gratitude promotes a perceptual bias. Therefore, it is plausible that grateful people are more likely to over-perceive benefits received from others due to a positive perceptual bias.

To determine whether the over-perception of benefits is partly illusory, a dyad study between friends was conducted to assess maintenance behaviors from both parties' points of view. Prior studies have used either confederates or vignettes to test for such effects. Few studies have tested this effect in an active friendship. As active friendships require constant maintenance behaviors to and from both parties, it is possible to predict how much benefit the actor should receive by collecting both the perceived benefits (actor's perception of partner's behavior) and partner-enacted benefit (i.e. behavior towards actor as reported by partner):

$$\text{Perceived Benefit} = b_0 + b_1 \text{Partner-Enacted Benefit} + e \quad (2)$$

where b_0 and b_1 are the intercept and slope (respectively) estimated from a linear regression analysis in which perceived benefit is regressed on partner-enacted benefit. Over-perception of benefits is the residual variation (e) in perceived benefit after controlling for partner-enacted benefit (Murray, Holmes, & Griffin, 1996b).

An alternative to using residuals is to operationalize the over-perception of benefits by subtracting partner-enacted benefit from actor perceived benefit. However, this method of operationalization (a) assumes that the partner-enacted benefit is accurate and (b) ignores the possibility that the actor's reports might be accurate but his (her) partner's reports are biased. It is important to acknowledge that both perceived and partner-enacted benefits are susceptible to biases. However, to the extent that there is a significant relationship between partner-enacted and actor-perceived benefits (as measured by the regression coefficient), this relationship should

have some basis in reality. Any residual variation above and beyond this effect might then be interpreted as capturing a perceptual bias or “illusion” on the part of the actor—though such scores will also contain some amount of measurement error. Although computing the over-perception of benefits through regression residuals is unable to eliminate these ambiguities completely, it does not assume that any one party’s report completely reflects the truth.

Grateful people may be more likely to over-perceive benefits received due to their tendency to engage in positivity bias. Gratitude causes individuals to see their benefactors in a positive light (Algoe & Haidt, 2009) and in turn, results in individuals believing that others are doing more for them than they actually are (Wood et al., 2008b).

H4: Grateful people will over-perceive the benefits received controlling for the benefits their partners report enacting.

Possessing an over-perception about relational partners’ enacted benefits and attributes promotes relationship satisfaction. People report greater relationship satisfaction when they possess more positive illusions about their partners (Murray, Holmes, & Griffin, 1996a), and believe that their partners are more supportive and caring. In addition, positive illusions were also associated with fewer conflicts and greater relationship satisfaction over a 3-year period (Murray et al., 1996b). Thus another mechanism linking trait gratitude to relationship satisfaction may be the over-perception of benefits received.

H5: Over-perception of benefits will mediate the relation between trait gratitude and relationship satisfaction.

Trait gratitude, negative exchanges and relationship satisfaction

Negative exchanges are a part of relationships. High frequency of negative exchanges is a violation of relationship expectations and often results in dissatisfying relationships (Hall, 2014;

Hall & Baym, 2011). As grateful people are more likely to report greater relationship satisfaction, gratitude may also play an important role in mitigating the negative exchanges in a relationship.

The burden balance. To date, much of the literature has focused on positive maintenance behaviors in the study of relationship expectations, but few have explored the effects of negative exchanges. The burden balance is a paradigm designed as a parallel of perceived fulfillment that enables us to test the effects of negative exchanges in a relationship. The burden balance is based on the notion that people do not generally expect negative exchanges in ideal relationships. I classify negative exchanges into two main categories – (a) deal-breakers and (b) annoying habits or unwanted behaviors. Deal-breakers are behaviors that upon acknowledgment, would damage the foundation of the relationship. Examples of consequences include relationship status demotion (e.g. from a close friend to an acquaintance) or dissolution. On the other hand, annoying habits and unwanted behaviors are interactions that occur in any relationship. Their appearance in small, infrequent amounts do not greatly affect the foundation of the relationship. The latter is usually inevitable in most relationships, and will be the main type of negative behaviors or “burdens” this study will focus on. There is a limit to the frequency of burdens we can accept. I refer to this limit as *tolerance*. Tolerance is predictive of relationship satisfaction (Benenson et al., 2009). If the individual has higher tolerance towards relationship burdens, he (she) is more likely to be satisfied with the relationship.

As the burden balance was designed as a parallel to perceived fulfillment, it suggests that tolerance has some similarities to expectations. Firstly, both tolerance and expectations represent benchmarks by which behaviors in a relationship are judged. However, tolerance is specific to undesirable behavior, while expectations are specific to desirable behaviors. The burden balance

is operationalized as the discrepancy between perceived burden (i.e. actor's perception of the partner's negative behavior) and the actor's tolerance of such behaviors.

$$\text{Burden Balance} = \text{Perceived Burden} - \text{Tolerance} \quad (3)$$

If the burden balance is negative, the actor feels under-burdened by their partner and the relationship is more likely to be judged as satisfying. On the other hand, if the burden balance is positive, the actor feels over-burdened and the relationship is more likely to be judged as dissatisfying.

Gratitude and the burden balance. Gratitude is significantly and positively correlated with forgiveness (Breen, Kashdan, Lenser, & Fincham, 2010; Chan, 2013), which suggests that grateful people are more forgiving towards the negative behaviors of others. In addition, grateful people are more likely to engage in positive reframing (Lambert, Fincham, & Stillman, 2012; Lambert, Graham, Fincham, & Stillman, 2009). Positive reframing is the tendency to perceive the positive aspects of a situation or event that is traditionally viewed as negative (Lambert et al., 2009). Positive reframing of negative events reduces the harmful influence these events have on our lives, and mediates the relation between trait gratitude and depression (Lambert et al., 2012).

The evidence above tentatively suggests that grateful people (a) are more tolerant and (b) may perceive less relationship burdens than ingrates. Furthermore, if grateful people are likely to over-perceive the benefits they receive, similar perceptual illusion mechanisms could cause them to under-perceive burdens relative to what their partners report enacting. From our knowledge, however, there has not been any research done on trait gratitude and negative exchanges. As negative exchanges can have a large impact on relationship satisfaction (Gottman, 1993), it is important to consider how grateful people tolerate and perceive the burdens of their relationships with others. Doing so will contribute to a more complete account of gratitude. However, as

previous research has not focused on how grateful people process negative social interactions, our analyses are predominantly exploratory.

The Current Study

The main purpose of the current study was threefold. Firstly, I examined the effects of trait gratitude on perceived fulfillment through (a) perceived benefits and (b) expectations. Secondly, I evaluated the extent to which grateful people over-perceive benefits received. After, I explored the role of perceived fulfillment between trait gratitude and relationship satisfaction. Finally, I explored the relation between trait gratitude and burdens, and whether the latter also mediated the effects of gratitude on satisfaction.

A dyad design was used to assess the illusory effects of perceived benefits and perceived burdens. To assess both positive and negative behaviors, I adapted items from the Positive and Negative Social Exchange scale (PANSE; Newsom, Rook, Nishishiba, Sorkin & Mahan, 2005). The PANSE was created to assess general positive and negative social exchanges, without specific reference to a particular relational group. Therefore, the items in the PANSE were applicable to the current study between friends. The PANSE encompasses four factors of positive exchanges including information support (e.g., make useful suggestions), instrumental support (e.g., perform favors for you), emotional support (e.g., cheer you up or help you feel better) and companionship (e.g., provide you with good company). These 4 factors are similar to maintenance behaviors and relationship expectations found in Hall (2012), and were adapted to reflect expectations, perceived benefits and partner-enacted benefits. In addition, the PANSE also encompasses four factors of negative exchanges including intrusion (e.g., give you unwanted advice), failure to provide help (e.g., fail to provide assistance when needed),

insensitive behavior (e.g., ignored you) and rejection (e.g., act angry or upset with you). These items were adapted to assess tolerance, perceived burden and partner-enacted burden.

Methods

Participants

Two hundred and fourteen participants (107 dyads) were recruited for this study via an online recruitment platform to complete a 15-minute survey. Participants were offered 1 psychology course credit for (a) completing the study and (b) bringing along a same-sex friend to take part in the study with them. The friend had the option to choose between 1 psychology course credit or cash payment of \$5 for completing the study.

Out of the 214 participants recruited, 4 were repeat participants who took part in the study again as friends of another participant. As a result, they were removed from the data analysis along with their partners. In addition, another 2 pairs were removed as they did not rate their partners. In total, 12 participants were removed from the analysis, bringing the final count to 202 participants (101 dyads).

Materials

Gratitude Questionnaire. The Gratitude Questionnaire 6-item (GQ-6; McCullough et al., 2002) consists of 6 self-report items (i.e. “I have so much in life to be thankful for”). Participants were asked to indicate how strongly they agreed with each statement in general on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). Trait gratitude was computed by averaging all items in the GQ-6 ($\alpha = .770$).

Friendship Related Variables. Participants were requested to fill in the initials of the friend they came with, their friend’s gender and the period of acquaintance they have known their friend for (i.e. “How long have you known X for?”) in months and years.

Relationship Assessment Scale. The Relationship Assessment Scale (RAS; Hendrick, 1988) consists of 7 self-report items to assess actors' relationship satisfaction with their partners. As the RAS was designed for married couples, the items were modified slightly to suit the context of the current study (i.e. "How well does X meet your needs?") on a 5-point scale (*1=not at all; 5=very much*). Relationship satisfaction was computed by averaging all items in the RAS ($\alpha = .757$).

Relationship expectations, perceived benefits and actor-enacted benefits. Twelve items were adapted from the PANSE (Newsom et al., 2005) and modified three times in the study to measure relationship expectations, perceived benefits and enacted benefits (to partner).

Relationship expectations. PANSE items were modified to assess actors' ideal frequency of specific maintenance behaviors in their relationship with their partner (i.e., friend). Actors were presented with a list of common maintenance behaviors. Based on what they wanted in their friendship in general, they were asked to indicate the frequency of each behavior expected of their partner "X" (e.g. I would expect X to provide me with good company and companionship) on a 5-point scale (*1=never; 5=almost always*). Relationship expectations was computed by averaging all items in the corresponding scale ($\alpha = .925$).

Perceived benefits. Items were rephrased to assess benefits actors received from their partner. Actors were asked to rate the frequency they received each benefit (e.g. X provided me with good company and companionship) from their partner in general on a 5-point scale (*1=never; 5=almost always*). Perceived benefits was computed by averaging all items in the corresponding scale ($\alpha = .946$).

Enacted benefits (to partner). Items were rephrased to assess benefits that actors enacted for their partner. Actors were asked to report the frequency of enacting each behavior (e.g. I

provided X with good company and companionship) for their partner in general on a 5-point scale ($1=never$; $5=almost\ always$). Enacted benefits was computed by averaging all items in the corresponding scale ($\alpha = .949$).

Tolerance, perceived burden and enacted burdens. Twelve items were adapted from the PANSE and modified three times in the study to measure tolerance, perceived burden and enacted burdens.

Tolerance. Items were rephrased to assess the maximum frequency of specific negative behaviors actors were able to tolerate from their partner. Actors were asked to reflect carefully and think about their limits for each behavior. After, they were asked to indicate their maximum tolerance for each behavior (e.g. I can tolerate it when X questions my decisions) on a 5-point scale ($1=never$; $5=almost\ always$). Tolerance was computed by averaging all items in the corresponding scale ($\alpha = .932$).

Perceived burden. Actors were asked to rate the frequency their partner performed each negative behavior (e.g. X questioned my decisions) in general on a 5-point scale ($1=never$; $5=almost\ always$). Perceived burden was computed by averaging all items in the corresponding scale ($\alpha = .912$).

Enacted burdens (to partner). Items were rephrased to assess the burdens actors enacted towards their partner. Actors were asked to report the frequency of enacting each negative behavior (e.g. I question X's decisions) towards their partner in general on a 5-point scale ($1=never$; $5=almost\ always$). Enacted burdens was computed by averaging all items in the corresponding scale ($\alpha = .885$).

Mini International Personality Item Pool. The Mini International Personality Item Pool (IPIP; Donnellan, Oswald, Baird, & Lucas, 2006) consists of 20 self-report items assessing an

individual's Big 5 personality traits. Sample items include "Am the life of the party" for extraversion and "sympathize with others' feelings" for agreeableness. Participants were asked to indicate how accurately each statement described them on a 5-point scale (1= *Very Inaccurate*; 5= *Very Accurate*). The rationale for including the Mini IPIP is to control for extraversion ($\alpha = .824$) and agreeableness ($\alpha = .747$), as both traits are associated with trait gratitude (McCullough et al., 2002; McCullough et al., 2004) and relationship satisfaction (Heller et al., 2004; Malouff et al., 2010; Tov et al., 2016).

Procedure

Participants entered the venue in pairs. Upon informed consent, they were split up and sat at opposite ends of the room, facing the front. Participants completed the Mini IPIP and the GQ-6. After, they filled in some basic information regarding the relationship with their friend and the RAS. They were then asked to rate each friend on the 6 questionnaires adapted from the PANSE in the following order – relationship expectations, perceived benefits, enacted benefits (to partner), tolerance, perceived burden and enacted burdens (to partner)¹. Finally, participants provided demographic information. They were debriefed and thanked for their participation.

Results

Data were analyzed by correlation and regression. In addition, prior studies have found that period of acquaintance and gender are both predictive of an individual's expectations and relationship satisfaction (Fuhrman, Flannagan, & Matamoros, 2009; Hall, 2011). Furthermore, extraversion and agreeableness are associated with both trait gratitude (McCullough et al., 2004) and relationship satisfaction (Tov et al., 2016). Partial correlations controlling for these

¹ All participants completed the survey in this order to prevent adjustment to their relationship expectations based on their perceived benefits or burdens received. Because few studies have established the association between trait gratitude and relationship expectations, it was important for this first study to obtain an assessment of expectations that would not be contaminated by perceived benefits or burdens.

additional variables were examined to identify the unique effects of trait gratitude on relationship satisfaction.

Descriptive statistics for independent, mediating and dependent variables can be viewed in Table A and correlations for these variables can be viewed in Table B and C. In addition, as prior studies have found gender differences in expectations and relationship satisfaction (e.g. Hall, 2011), a t-test was conducted to explore gender differences and relationship outcomes in this study. Results indicated that females had higher trait gratitude, perceived more benefits from their friends, and had greater relationship expectations than males. In addition, females had marginally higher relationship satisfaction with their friends than males. The compilation of gender differences can be viewed in Table D.

Gratitude, Perceived Fulfillment and Relationship Satisfaction

H1: Grateful people will perceive greater benefits from their friend compared with ingrates. Consistent with the prediction of Hypothesis 1, trait gratitude correlated positively with perceived benefits ($r = .190, p = .007$), suggesting that grateful people do perceive more benefits from their friends as compared with ingrates.

Table E is a summary of partial correlations among personality and relationship outcomes. For example, the partial correlation between trait gratitude and perceived benefit was still significant after controlling for agreeableness ($r = .15, p = .036$). Similarly, partial correlation between trait gratitude and perceived benefit was also significant after controlling for Extraversion ($r = .19, p = .006$). Partial correlations revealed that both period of acquaintance ($r = .24, p = .001$) and gender ($r = .17, p = .016$) were significantly correlated with perceived benefit after controlling for trait gratitude. Agreeableness and extraversion were no longer correlated with perceived benefit after controlling for trait gratitude. To estimate the increment in

variance accounted for by trait gratitude over and above period of acquaintance and gender, a regression analysis was conducted. In step 1, period of acquaintance and gender accounted for 11.9% of the variance in perceived benefits. In step 2, trait gratitude was included in the model. Results indicated that trait gratitude was marginally predictive of perceived benefits ($b = .114$, $SE = .063$, $p = .073$, 95% CI $[-.011, .238]$, $\Delta R^2 = .014$). Taking into account how long they have known their friends and gender differences, grateful people tended to perceive more benefits from their friends than ingrates.

H2: Grateful people would have lower expectations compared with ingrates.

Inconsistent with the prediction of hypothesis 2, trait gratitude was positively correlated with expectations, ($r = .200$, $p = .004$), suggesting that grateful people have higher expectations of their friends than do ingrates.

Partial correlations (Table E) revealed that both period of acquaintance ($r = .18$, $p = .009$) and gender ($r = .16$, $p = .021$) were significantly correlated with expectations after controlling for trait gratitude. Agreeableness and extraversion were no longer predictive of expectations after controlling for trait gratitude. A regression analysis was again conducted. In step 1, period of acquaintance and gender accounted for an 8.8 % of the variance in relationship expectations. In step 2, trait gratitude was included in the model. Results indicated that trait gratitude was significantly predictive of relationship expectations ($b = .108$, $SE = .053$, $p = .042$, 95%CI $[-.004, .213]$, $\Delta R^2 = .019$). Taking into account how long they have known their friends and gender differences, grateful people still have greater expectations of their friends than ingrates.

H3: The relation between trait gratitude and relationship satisfaction is mediated by perceived fulfillment.

Computing perceived fulfillment. Perceived fulfillment was computed by subtracting relationship expectations from perceived benefits (refer to equation 1). As a difference score, it was important to establish the validity of the perceived fulfillment score. Hence, a correlation between perceived fulfillment and trait gratitude was compared against correlations tested in H1 and H2. The correlational strength of trait gratitude and perceived fulfillment ($r = .034, p = .635$) was weaker than the correlations in H1 and H2. In addition, relationship satisfaction correlated less strongly with perceived fulfillment ($r = .285, p < .001$) than with separate scores for (a) perceived benefit ($r = .613, p < .001$) and (b) relationship expectations ($r = .488, p < .001$). Based on the correlation strengths, it is suggested that perceived fulfillment accounts for less variance in both trait gratitude and relationship satisfaction than separate scores for perceived benefit and relationship expectations. Hence, further analyses for H3 would be conducted with perceived benefits and expectation as separate variables.

Perceived benefits as a mediator. Mediation analysis was conducted via the PROCESS macro in SPSS. The model included trait gratitude as the predictor of perceived benefits (Path A), and perceived benefits as a predictor of relationship satisfaction (Path B). To determine whether any covariates should be included in the model, I examined partial correlations with relationship satisfaction (Table E). Period of acquaintance was significantly correlated with relationship satisfaction after controlling for trait gratitude ($r = .18, p = .009$). Furthermore, in testing H1, I identified both period of acquaintance and gender as control variables for perceived benefits. Hence, both gender and period of acquaintance were included as covariates in the model.

Path A of the model was tested in H1, where trait gratitude was marginally associated with perceived benefit ($b = .114, SE = .063$). Path B of the model was significant, indicating that perceived benefit was associated with greater relationship satisfaction ($b = .369, SE = .038, p$

< .001). The overall model was significant ($R^2 = .413$, $F [4, 197] = 34.636$, $p < .001$). A bootstrap analysis (10,000 samples) was conducted on the indirect effect of trait gratitude on relationship satisfaction ($A*B$ or ab). The 95% bias-corrected confidence interval for the indirect effect included zero ($ab = .042$, 95%CI [-.005, .103]), suggesting a non-significant indirect effect of trait gratitude on relationship satisfaction. Furthermore, the direct effect of trait gratitude on relationship satisfaction remained significant, ($b = .116$, $SE = .034$, $p = .001$, 95%CI [.049, .182]). This suggests that perceived benefits may not be the reason why grateful people have greater relationship satisfaction.

Relationship expectations as a mediator. This model included trait gratitude as the predictor, relationship satisfaction as the dependent variable and relationship expectations as the mediator. Period of acquaintance and gender were included as covariates in the model.

Path A of the model was tested in H2, where trait gratitude was significantly associated with relationship expectations ($b = .108$, $SE = .053$). Path B of the model was significant, indicating that relationship expectations were associated with greater relationship satisfaction ($b = .332$, $SE = .050$, $p < .001$). The overall model was significant ($R^2 = .290$, $F [4, 197] = 20.157$, $p < .001$). The bootstrap analysis suggested a significant indirect effect of trait gratitude on relationship satisfaction, ($ab = .035$, 95%CI [.000, .089]). This suggests that grateful people have greater relationship satisfaction through greater relationship expectations. However, the direct effect of trait gratitude on relationship satisfaction was still significant ($b = .122$, $SE = .037$, $p = .001$, 95%CI [.048, .195]). This suggests that greater relationship expectations were not the only reason why grateful people had greater relationship satisfaction.

H4: Grateful people will over-perceive the benefits received controlling for the benefits their partners report enacting. Actor's perceived benefits correlated positively with

partner-enacted benefits ($r = .59, p < .001$) suggesting some relative agreement between the benefits perceived by actors, and those their partners report enacting. A ‘benefit illusion’ score was computed as the residual variation in perceived benefit after controlling for partner-enacted benefit (refer to equation 2).

Trait gratitude correlated positively with benefit illusion ($r = .207, p = .003$). Using a linear regression equation predicting benefit illusion from trait gratitude, I entered high and low values of trait gratitude (± 1 SD from the mean) to obtain predicted levels of illusion for grateful people and ingrates, respectively. Predicted illusion scores were larger for grateful people ($Y' = +1.016$) than ingrates ($Y' = +.740$) although both scores were positive. Thus, on average, people tend to perceive more benefits than their partners report enacting; however, this tendency is stronger for grateful people than ingrates. Thus H4 was supported.

Partial correlations (Table F) revealed that none of the control variables were significantly correlated with over-perception of benefits after controlling for trait gratitude. Hence, no additional regression analyses were conducted for trait gratitude and the over-perception of benefits.

H5: Over-perception of benefits will mediate the relationship between trait gratitude and relationship satisfaction. The model included trait gratitude as the predictor, relationship satisfaction as the dependent variable and the benefit illusion score as the mediator. Period of acquaintance was included as a covariate in the model.

Path A of the model indicated that trait gratitude was significantly associated with benefit illusion ($b = .150, SE = .052, p = .005$). Path B of the model was significant, indicating that benefit illusion was associated with greater relationship satisfaction ($b = .350, SE = .048, p < .001$). The overall model was significant ($R^2 = .305, F [3, 198] = 28.968, p < .001$). The

bootstrap suggested a significant indirect effect of trait gratitude on relationship satisfaction, 95%CI [.0169, .097]. This suggests that grateful people have greater relationship satisfaction by over-perceiving the benefits received. However, the direct effect of trait gratitude on relationship satisfaction was still significant ($b = .117$, $SE = .036$, $p = .001$, 95%CI [.046, .189]). This suggests that over-perceiving benefits was not the only reason why grateful people had greater relationship satisfaction.

Trait Gratitude, Negative Exchanges and Relationship Satisfaction

Grateful people perceive less burdens from their friends compared with ingrates.

Consistent with our predictions, trait gratitude correlated negatively with perceived burdens ($r = -.204$, $p = .004$), suggesting that grateful people do perceive less burdens from their friends as compared with ingrates.

Partial correlations (Table G) revealed that only agreeableness was significantly associated with perceived burden after controlling for trait gratitude ($r = -.14$, $p = .042$). Extraversion, period of acquaintance and gender were no longer correlated with perceived burden after controlling for trait gratitude. Hence, agreeableness was the only control variable included in the regression analysis. In step 1, agreeableness accounted for 3.6% of the variance in perceived burden. In step 2, trait gratitude was included in the model. Results indicated that trait gratitude was significantly predictive of perceived burdens ($b = -.096$, $SE = .045$, $p = .037$, $\Delta R^2 = .021$). Independent of their own degree of agreeableness, grateful people perceive less burdens from their friends as compared with ingrates.

Grateful people will have higher levels of tolerance. Inconsistent with our predictions, trait gratitude was not significantly correlated with tolerance ($r = .064$, $p = .363$), suggesting that

grateful people are not necessarily more tolerant towards their friends' negative behaviors as compared with ingrates.

The relation between trait gratitude and relationship satisfaction is mediated by the burden balance.

Computing burden balance. Tolerance was not significantly correlated with trait gratitude ($r = .064, p = .363$) and relationship satisfaction ($r = .046, p = .515$). Nonetheless, burden balance was still computed by subtracting tolerance from perceived burden (refer to equation 3). Trait gratitude correlated less strongly with burden balance ($r = -.191, p = .006$) than with the separate perceived burden score ($r = -.204, p = .004$). Similarly, relationship satisfaction correlated less strongly with burden balance ($r = -.200, p = .004$) than perceived burden ($r = -.245, p < .001$). Based on the correlation strengths, it is suggested that the burden balance accounts for less variance in both trait gratitude and relationship satisfaction than perceived burden. Hence, further mediation analyses would be conducted only with perceived burdens.

Perceived Burden as a mediator. The model included trait gratitude as the predictor of perceived burden (Path A), and perceived burden as a predictor of relationship satisfaction (Path B). Based on the partial correlations with perceived burden (Table G) and relationship satisfaction (Table E), both agreeableness and period of acquaintance were included as covariates in the model.

Path A of the model indicated that trait gratitude was significantly associated with perceived burden ($b = -.101, SE = .046, p = .027$). Path B of the model was significant, indicating that perceived burden was associated with lower relationship satisfaction ($b = -.197, SE = .065, p = .003$). The overall model was significant ($R^2 = .164, F [4, 197] = 9.661, p < .001$). The bootstrap analysis suggested a significant indirect effect of trait gratitude on relationship

satisfaction, ($ab = .020$, 95% CI [.003, .056]). This suggests grateful people have greater relationship satisfaction through less perceived burdens. However, the direct effect of trait gratitude on relationship satisfaction was still significant ($b = .135$, $SE = .042$, $p = .002$, 95% CI [.052, .218]). This suggests that less perceived burden was not the only reason why grateful people had greater relationship satisfaction.

Grateful people will under-perceive the burdens received controlling for the burdens their partners report enacting. If grateful people are more likely to over-perceive the benefits received, it is plausible that they also under-perceive the burdens received. Actor's perceived burdens correlated positively with partner-enacted burdens ($r = .26$, $p < .001$), suggesting some relative agreement between the burdens perceived by actors, and those their partners report enacting. The burden illusion score was computed as the residual variation in perceived burden after controlling for partner-enacted burden using the following equation:

$$\text{Perceived Burden} = b_0 + b_1\text{Partner-Enacted Burden} + e \quad (4)$$

where b_0 and b_1 are the intercept and slope (respectively) estimated from a linear regression analysis in which perceived burden is regressed on partner-enacted burden. e is the burden illusion score is the residual variation (e) in perceived burden after controlling for partner-enacted burden.

Trait gratitude correlated negatively with the burden illusion score ($r = -.179$, $p = .011$). Using a linear regression equation predicting burden illusion from trait gratitude, the results indicated that the predicted burden illusion scores were more negative for grateful people ($Y' = -.700$) than ingrates ($Y' = -.510$). Thus, on average, people tend to perceive less burdens than their partners report enacting; however, this tendency is stronger for grateful people than ingrates.

Partial correlations (Table G) revealed that only agreeableness was marginally associated with burden illusion after controlling for trait gratitude ($r = -.13$, $p = .074$). Extraversion, period

of acquaintance and gender were no longer correlated with burden illusion after controlling for trait gratitude. Hence, agreeableness was the only control variable included in the regression analysis. In step 1, agreeableness accounted for 3.3% of the variance in burden illusion. In step 2, trait gratitude was included in the model. Results indicated that trait gratitude was marginally predictive of burden illusion ($b = -.079$, $SE = .044$, $p = .074$, $\Delta R^2 = .015$). Independent of their own degree of agreeableness, grateful people tend to under-perceive burdens more than ingrates do.

The relation between trait gratitude and relationship satisfaction is mediated by under-perceiving burdens. This model included trait gratitude as the predictor of burden illusion (Path A), and the burden illusion as a predictor of relationship satisfaction (Path B). Based on the partial correlations (Tables E and G), both agreeableness and period of acquaintance were included as covariates in the model.

Path A of the model indicated that trait gratitude was marginally associated with burden illusion ($b = -.082$, $SE = .044$, $p = .066$). Path B of the model was significant, indicating that burden illusion was associated with greater relationship satisfaction ($b = -.200$, $SE = .066$, $p = .003$). The overall model was significant ($R^2 = .164$, $F [4, 197] = 9.624$, $p < .001$). The bootstrap analysis suggested a significant indirect effect of trait gratitude on relationship satisfaction, ($ab = .016$, 95%CI [.008, .049]). This suggests grateful people have greater relationship satisfaction by under-perceiving the burdens received. However, the direct effect of trait gratitude on relationship satisfaction was still significant ($b = .139$, $SE = .042$, $p = .001$, 95%CI [.056, .221]). This suggests that under-perceiving burdens was not the only reason why grateful people had greater relationship satisfaction.

Testing for Unique Mediating Effects

The single-mediator analyses above indicated that relationship expectations, over-perception of benefits, and perceived burdens did not fully mediate the relations between trait gratitude and relationship satisfaction. However, in an ongoing relationship, expectations, benefits and burdens often covary with each other. Hence, an additional mediation analysis was conducted. The model included trait gratitude as the predictor of (a1) relationship expectations, (a2) perceived benefits, (a3) partner-enacted benefits, (a4) perceived burden and (a5) partner-enacted burden, and the above 5 mediators as predictors of relationship satisfaction. Illusion scores for benefits and burdens were not included in the model as firstly, both illusion scores were computed from perceived and partner-enacted scores (refer to equations 2 and 4). Nevertheless, both illusion scores are represented in the model by the effects of perceived benefits (burdens) *over and above* partner-enacted benefits (burdens)². A depiction, and results of the mediation analysis are reported in Figure 1.

Trait gratitude was significantly associated with (a1) relationship expectations, (a2) perceived benefits, (a4) perceived burdens and marginally associated with (a5) partner-enacted burdens. Trait gratitude was not significantly associated with (a3) partner-enacted benefits. Furthermore, (b1) relationship expectations, (b2) perceived benefits, (b4) perceived burdens and (b5) partner enacted burdens, were significantly associated with relationship satisfaction above and beyond trait gratitude. However, (b3) partner-enacted benefits was not significantly associated with relationship satisfaction above and beyond trait gratitude. The overall model was significant ($R^2 = .490$, $F [6, 195] = 30.664$, $p < .001$). The bootstrap analysis suggested a significant indirect effect of trait gratitude on relationship satisfaction, through relationship

² If both perceived benefit (burden) and benefit (burden) illusion were included simultaneously within the model, the effect of perceived benefit (burdens) would actually represent the effect of partner-enacted benefits (burdens), which is representative of the partner's perspective. In that case, it would be confusing to interpret the effect of perceived benefit, as it would now imply the partner's perspective, and not the actor's

expectations ($a_1b_1 = .021$, 95%CI [.001, .055]), perceived benefits ($a_2b_2 = .055$, 95%CI [.013, .124]), perceived burdens ($a_4b_4 = .027$, 95%CI [.009, .065]), and partner-enacted burdens ($a_5b_5 = .009$, 95%CI [.000, .028]). This suggests grateful people have greater relationship satisfaction through (a) greater relationship expectations, (b) over-perception of benefits (c) under-perception of burdens and (e) less partner-enacted burdens. However, the direct effect of trait gratitude on relationship satisfaction still remained significant ($b = .066$, $SE = .033$, $p = .042$, 95%CI [.002, .131]). Thus the combination of mediators were still unable to fully mediate the relation between trait gratitude and relationship satisfaction, suggesting that there are other unexplored variables that could drive this relation.

Discussion

Supporting H1 and H2, grateful people marginally perceived more benefits (H1) and had significantly greater expectations of their friends (H2). This relation sustained even after controlling for how long they had known their friends and gender differences. H3 could not be directly evaluated because the utility of perceived fulfillment score could not be established. As the correlation strength between trait gratitude and relationship satisfaction with expectations and perceived benefit were stronger than perceived fulfillment, the analyses for H3 were conducted with perceived benefit and expectations as separate variables. Independently, expectations mediated the relation between trait gratitude and satisfaction while perceived benefits marginally mediated the relation. Grateful people also tended to over-perceive the benefits received from their partners (H4), and this over-perception of benefits served as a means through which grateful people experience greater relationship satisfaction (H5).

Contrary to our predictions, grateful people were not more tolerant towards their friends. However, grateful people did perceive less burdens from their friends, and this was also driven

by their perceptual illusions: grateful people perceived less burdens than their friends reported enacting. This perceptual illusion, in turn, was associated with greater relationship satisfaction.

In single-mediator analyses, having high expectations, over-perceiving benefits and under-perceiving burdens did not fully explain why grateful people experience greater relationship satisfaction. Our final mediation analysis suggested that each mediator uniquely accounted for the effects of trait gratitude on relationship satisfaction. In addition, partner-enacted burdens also mediated the effects of gratitude on satisfaction above and beyond the actor's subjective perception. However, partner-enacted burden was only significantly correlated with relationship satisfaction after controlling for perceived benefits and relationship expectations, but not at zero-order. Hence, it is difficult to determine its importance in relationship satisfaction just based on the current study.

These results suggest that grateful people perceive greater relationship satisfaction through two main mechanisms - relationship expectations and perceptual illusions. Potential implications of identifying these two main mechanisms provides insight into the link between trait gratitude and relationship satisfaction.

The Unique Effects of Relationship Expectations on Relationship Satisfaction

In H2, I hypothesized that grateful people have better relationships due to lower expectations. Contradictory to my predictions, grateful people have greater expectations of their relational partners, and these greater expectations contributed to their relationship satisfaction. This effect is above and beyond the actor's perception of the benefits *received* suggesting that expectations have a unique effect on relationship satisfaction.

High expectations and relationship satisfaction. Relationship expectations are a standard that we compare our current circumstance against, and are reflective of how much

positive behavior an actor desires from the partner. Prior research has indicated that overly high expectations tend to be associated with relationship dissatisfaction (Hall, 2014; Hall & Baym, 2011; Hall et al., 2011). However, research has suggested that besides serving as a standard people would like their friends to fulfill, expectations may also (a) serve as an indicator of relationship closeness and (b) serve as a selection criteria for friends.

High expectations as an indicator of relationship closeness. In the study by Fuhrman et al. (2009), participants rated their expectations for a close friend, a friend, and an acquaintance. Results indicated that participants had much higher expectations for their close friend as compared with the remaining two relational partners and higher expectations for their friend as compared with the acquaintance. Similar results were found in Oswald et al., (2004), where close friends expect a higher frequency of maintenance behaviors from each other. While it is not possible to determine causality between high expectations and closeness, the positive association between both variables suggests that people have clear differences between who they define as close friends, friends and acquaintances. If high expectations are indicative of relationship closeness and intimacy, and close and intimate relationships are more satisfying (E.g. Acker & Davis, 1992; Ng & Cheng, 2010), it is understandable that individuals who have high expectations of their friends have more satisfying relationships.

Experiencing gratitude increases perceived closeness towards benefactors (Algoe & Haidt, 2009). As grateful people experience gratitude at a high frequency (McCullough et al., 2004), it can be suggested that grateful people feel closer to their friends than do ingrates. Feelings of closeness may then facilitate higher levels of expectations as well as greater satisfaction. These interrelationships among gratitude, closeness, and expectations could be more carefully investigated in future research.

Expectations as a selection criteria for friends. As mentioned above, people are more satisfied with friends who meet or exceed their expectations, and less satisfied with friends who are unable to meet their expectations (Hall, 2014; Hall & Baym, 2011; Hall et al., 2011). Therefore, if a friend is consistently unable to meet the expectations of the individual, he (she) would eventually experience an overall decrease in satisfaction. In turn, the decrease in satisfaction might lead to lower motivation to maintain the relationships with the friend. In contrast, people could be more motivated to maintain friendships with those who are able to meet their expectations. Hence, it is possible that individuals with high expectations are more selective in maintaining friendships. Remaining friends with those who can be held to a high standard is surely more satisfying than staying friends with those who frequently disappoint.

As found in this study, grateful people have higher relationship expectations. Hence, it can be suggested that grateful people experience greater relationship satisfaction because they are more selective about their friends. Based on their high levels of expectations, the friends whom they chose to maintain relationships with are more likely to be individuals who are able to fulfill these expectations. Therefore, grateful people could have greater relationship satisfaction due to their selection criteria which enables them to choose quality friends capable of meeting and fulfilling their expectations. Nevertheless, relationship expectations did not fully mediate the effect of trait gratitude on satisfaction. A second mechanism by which grateful people may maintain relationship satisfaction is through perceptual illusions.

The Role of Perceptual Illusions in Relationships Satisfaction

Grateful people over-perceive the benefits and under-perceive the burdens they experience with their friends. Mediation analyses indicated that these perceptual illusions contributed to relationship satisfaction above and beyond friend's enacted behaviors. Whereas

both perceived benefits *and* burdens predicted satisfaction, only enacted burdens (reported by friends) predicted satisfaction. However, enacted burdens only have an effect after controlling for perceived benefit and expectations, and its effect on relationship satisfaction is small³. Hence, it seems that individuals' perceptions were more predictive of their relationship than the benefits and burdens their friends report enacting for them. This is similar to past findings, where actors' perceptions of themselves and their partners were more predictive of their own relationship satisfaction compared with their partner's perceptions (Murray & Holmes, 1997; Watson, Hubbard, & Wiese, 2000).

The effects of subjective perception on satisfaction may reflect the idealization of relational partners. In the study by Murray et al. (1996a) couples were recruited and requested to complete a series of questionnaires depicting themselves, their current partner and their ideal partner. Results indicated that both parties' relationship satisfaction was positively associated with the idealization of their partner. Partner idealization occurred by (a) identifying virtues that their partners claim not to see in themselves and by (b) inflating the positive attributes of their partners. In addition, actors also idealize their partners by minimizing their faults (Murray & Holmes, 1993). These three mechanisms could apply to the results in our study. For instance, actors' over- (under-) perception of benefits (burdens) suggests a possible idealization of the partner. Furthermore, both subjective perceptions and idealization, are driven by individual trait characteristics (Watson et al., 2000). The present study suggests that grateful people in particular are more susceptible to biases that influence their perception of the benefits (burdens) performed for them by their friends.

³ An additional 3-step hierarchical linear regression analysis with relationship satisfaction as the dependent variable was conducted. In step 1, trait gratitude, relationship expectations and perceived benefit accounted for 42.1% of the model. In step 2, perceived burden was included in the model, and accounted for an additional 5.5%. In step 3, partner-enacted burden was included, and accounted for an additional 0.9% of the variance. The results indicate that the effect of partner-enacted burden on relationship satisfaction is small.

Lack of validity in perceived fulfillment

In this study, perceived fulfillment was operationalized as the discrepancy between one's expectations and what one perceives receiving (perceived benefit). The intent was to develop a better understanding of the two components that contributed to perceived fulfillment. However, this operationalization lacked validity in this study due to two main reasons. Firstly, in the current study relationship expectations and perceived benefit were both positively associated ($r = .69$), suggesting that both constructs are interrelated. As such, despite its conceptual relevance, the perceived fulfillment score may not have been meaningful in this study as there was insufficient variation between what people expected from their friends, and the benefits they perceived. The lack of variation could also be due to the type of participants recruited. In this study, participants were asked to bring along a friend. As a result, participants might have brought friends they had more satisfying relationships with. As relationship satisfaction is positively associated with both perceived benefits (Oswald et al., 2004) and relationship expectations (Hall, 2011), the friends brought in could be friends who perform benefits frequently, and are able to meet the participants' relationship expectations. Hence, there may be little difference between what participants expect and the perceived benefits received from these friends. The lack of difference could in turn result in range restriction on perceived benefits. Secondly, people may not evaluate their perceived fulfillment by consistently referencing their expectations, but may independently evaluate the benefits they receive from their friends. For example, people may value a single meaningful conversation with their friend even if such conversations occur less often than they would like. Finally, the mechanisms involved to evaluate perceived fulfillment may not involve a combination of both expectations and perceived benefits, but rather through independent evaluations of both components. Hence, future studies

can explore the interdependence and independence of both expectations and perceived benefits to determine the extent of their effects on satisfaction. This would confer us a better understanding of the association perceived benefits and relationship expectations with relationship satisfaction, and allow us to develop a better understanding of how individuals truly evaluate their relationships.

Factor Structure of Adapted PANSE Measures

An exploratory factor analysis (EFA) was conducted to ensure the factor structure of PANSE scale adapted was similar to the factor structure in Newsom et al., (2005). In particular, it was important to ensure that the positive exchanges reflected in the relationship expectations scale, perceived benefit scale and enacted benefits (to partner) scale were similar to each other. Two factors were consistently found across all three scales reflecting positive exchanges. The first factor encompassed 6 items from two factors (information support and instrumental support) while the second factor encompassed 6 items from the remaining two other factors (emotional support and companionship). The minimum correlation between these two factors across all three scales $r = .674$. The replicability of the factor structure across all three scales suggests some form of consistency and agreement between the three positive relationship outcomes. On the other hand, the factor structure of the negative exchanges reflected in the tolerance scale, perceived burden scale and enacted burden (to partner) were somewhat less clear. However, of the four factors in the PANSE, insensitive behavior consistently loaded onto one factor, while the remaining three factors – intrusion, failure to provide help and rejection – loaded onto the second factor. Although the minimum correlation between these two factors across all three scales were correlated at ($r = .591$), future researchers can look more closely at the factor structure and verify if they are meaningfully different across various forms of assessment. The less consistent factor

structure could be a contributing factor to the lack of association between tolerance and relationship satisfaction in this study.

Tolerance and relationship satisfaction. Contrary to my predictions, tolerance was not associated with relationship satisfaction in this study. This is inconsistent with results from prior studies (Benenson et al., 2009), which indicate that higher tolerance leads to greater relationship satisfaction. This could be due to the different emphases people place on different domains of negative behaviors. For instance, rejection-related behaviors (e.g. acted angry or upset with you) have greater repercussions as compared with other negative behaviors (Newsom et al., 2005). In addition to the factor structure, tolerance in this study was computed by averaging all domains of negative behavior. Hence, the influence of separate domains was overlooked, and may have been combined with less important domains. This could have resulted in an inaccurate representation of tolerance amongst participants, which led to the lack of association with relationship satisfaction. Future analyses can consider exploring the role of tolerance for different domains such as intrusion or insensitive behavior on relationship satisfaction⁴. This would confer us a better understanding of the relation between tolerance and relationship satisfaction, as well as the types of negative behaviors that people are less (more) able to tolerate.

Limitations

Acknowledging Interdependency within Dyads

All analyses used for this thesis assume independence of the data collected. However, as the study was conducted between dyads, it is important to acknowledge the interdependency of the data set. Being in an active friendship would suggest that the actions and behaviors of the

⁴ Additional correlational analyses between the four domains of tolerance and relationship satisfaction were conducted. Tolerance for intrusion was positively correlated with relationship satisfaction ($r = .225$) while tolerance for insensitive behavior was negatively correlated with relationship satisfaction ($r = -.124$). Tolerance for failure to provide help and rejection were not significantly correlated with relationship satisfaction.

target would affect the partner, and vice versa. This in turn, would influence how participants recall the self-report. Furthermore, assuming independency of the participants during analyses results in an under-estimation of the standard error. This under-estimation of the standard error may in turn, lead to an increase in false positive results, or Type I error.

In order to account for the interdependency of the data, follow up analyses can be conducted through the Actor Partner Interdependency Model (APIM; Campbell & Kashy, 2002). This model suggests that the actor's independent variable (e.g. actor's trait gratitude) would not only influence his (her) perceived benefits, but also the partner's perceived benefits. The APIM would allow us to control the influence of both members' traits and attributes on each other's behavior.

Interpreting Correlational Analyses

All analyses conducted in this study were correlational. Hence, the causality of the results have to be interpreted cautiously. For example, greater perceived benefits lead to relationship satisfaction. However, there are also studies suggesting that people in satisfying relationships perceive more benefits from their partners (Murray et al., 1996a). Hence, relationship satisfaction could be both an outcome and an antecedent to benefits and expectations. Future studies can consider longitudinal designs or experimental manipulations to determine causality, and note if similar trends can still be observed. This would allow a better understanding of the processes involved in evaluating relationship satisfaction.

In conclusion, trait gratitude has a significant role in both positive and negative aspects of a relationship. Grateful people experience greater relationship satisfaction through possessing greater expectations and perceptual illusions. In particular, grateful people's susceptibility to perceptual illusions may lead them to (a) over-perceive benefits that exceed their expectations

and (b) under-perceive burdens. Both mechanisms are complementary in promoting their relationship satisfaction. We believe that this paper can serve as a starting point to better understand how and why specific personality traits are more predictive of relationship satisfaction.

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Table A

Means and Standard Deviations for Independent and Dependent Variables

Variables	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Independent Variables				
Trait Gratitude	5.65	.89	1.00	7.00
Mediating Variables				
Relationship Expectations	3.50	.68	1.00	5.00
Perceived Benefits	3.41	.82	1.00	5.00
Perceived Fulfillment	-0.09	.60	-4.00	4.00
Partner-Enacted Benefit	3.21	.82	1.00	5.00
Actor's Benefit Illusion	-0.00	.66	-	-
Tolerance	2.65	.80	1.00	5.00
Perceived Burdens	1.65	.55	1.00	5.00
Burden Balance	-1.00	.86	-4.00	4.00
Partner-Enacted Burden	1.80	.53	1.00	5.00
Actor's Burden Illusion	-0.98	.53	-	-
Dependent Variables				
Relationship Satisfaction	4.14	.53	1.00	5.00

Notes: Sample sizes N= 202

Table B

Correlation amongst Actor and Partner Reported Expectations and Benefit Related Variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. AGRAT	--										
2. AExp	.20	--									
3. APBen	.19	.69	--								
4. APFul	.03	-.18	.58	--							
5. AEBen	.16	.73	.85	.33	--						
6. ABenI	.21	.50	.81	.54	.60	--					
7. PExp	-.01	.43	.45	.14	.49	.03	--				
8. PPBen	.03	.45	.54	.23	.59	.05	.69	--			
9. PPFul	.06	.14	.23	.15	.25	.04	-.18	.58	--		
10. PEBen	.04	.49	.58	.25	.60	-.00	.73	.85	.33	--	
11. ARAS	.30	.49	.61	.29	.57	.50	.31	.34	.10	.35	--

Note. $N = 202$. ATGRAT = Actor's Trait Gratitude; AEXP = Actor's Expectations; APBen = Actor's Perceived Benefit; APFul = Actor's Perceived Fulfillment; AEBen = Benefits Enacted by Actor; ABenI = Actor's Benefit Illusion; PEXP = Partner's Expectations; PPBen = Partner's Perceived Benefits; PPFul = Partner's Perceived Fulfillment; PEBen = Benefits Enacted by Partner; ARAS = Actors Relationship Satisfaction; Correlations greater than or equal to $|\text{.15}|$ are significant at $p < .05$

Table C

Correlation amongst Actor and Partner Reported Tolerance and Burden Related Variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. AGRAT	--										
2. AT	.06	--									
3. APBur	-.20	.24	--								
4. ABB	-.19	-.78	.42	--							
5. AEBur	-.26	.23	.76	.27	--						
6. ABurI	-.18	.24	.96	.39	.69	--					
7. PT	-.02	.08	.06	-.04	.02	-.00	--				
8. PPBur	-.11	.06	.30	.14	.26	.11	.24	--			
9. PBB	-.05	-.04	.14	.13	.15	.07	-.78	.42	--		
10. PEBur	-.12	.02	-.26	.15	.35	-.00	.23	.76	.27	--	
11. RAS	.30	.06	-.25	-.20	-.17	-.25	.01	-.09	-.07	-.03	--

Note. $N = 202$. ATGRAT = Actor's Trait Gratitude; AT = Actor's Tolerance; APBur = Actor's Perceived Burdens; ABB = Actor's Burden Balance; AEBur = Burdens Enacted by Actor; ABurI = Actor's Burden Illusion; PT = Partner's Tolerance; PPBur = Partner's Perceived Burdens; PBB = Partner's Burden Balance; PEBur = Burdens Enacted by Partner; ARAS = Actors Relationship Satisfaction; Correlations greater than or equal to $|\text{.15}|$ are significant at $p < .05$

Table D

Gender Differences for Independent and Dependent Variables

	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>
Variables	Males		Females		
Independent Variables					
Trait Gratitude	5.39	.95	5.78	.83	2.96
Mediating Variables					
Relationship Expectations	3.31	.65	3.59	.67	2.84
Perceived Benefits	3.17	.92	3.53	.74	2.72
Perceived Fulfillment	-0.14	.66	-0.07	.58	0.77
Partner-Enacted Benefit	3.01	.93	3.31	.74	2.24
Actor's Benefit Illusion	-0.13	.72	0.05	.63	1.84
Tolerance	2.79	.87	2.59	.77	1.67
Perceived Burdens	1.67	.59	1.63	.53	0.42
Burden Balance	-1.12	.98	-0.95	.79	1.19
Partner-Enacted Burden	1.78	.53	1.80	.54	0.27
Actor's Burden Illusion	0.03	.57	-0.12	.51	5.20
Dependent Variables					
Relationship Satisfaction	4.05	.57	4.19	.51	1.75

Notes: $N = 202$, females $n = 136$, males $n = 66$. t-values in bold are significant at $p < .05$. Marginally significant t-values are in italics at $p < .10$.

Table E

Partial Correlations between Gratitude and Perceived Benefit, Expectations and Relationship Satisfaction, Controlling for Control Variables

Variables	Controlling for				
	Grat	Agr	Ext	POA	Gender
Partial Correlations with Perceived Benefit					
Grat	--	.15	.19	.17	.16
Agr	.10	--	.16	.16	.15
Ext	-.03	-.03	--	.01	.04
POA	.24	.26	.26	--	.29
Gender	.17	.20	.21	.24	--
Partial Correlations with Expectations					
Grat	--	.16	.20	.19	.17
Agr	.10	--	.15	.16	.15
Ext	.01	.02	--	.05	.08
POA	.18	.20	.20	--	.23
Gender	.16	.19	.21	.23	--
Partial Correlations with Relationship Satisfaction					
Grat	--	.27	.29	.29	.28
Agr	.06	--	.15	.16	.15
Ext	.02	.04	--	.08	.10
POA	.18	.20	.20	--	.22
Gender	.07	.12	<i>.14</i>	.15	--

Note. $N = 202$. Grat = Trait Gratitude; Agr = Agreeableness; Ext = Extroversion; POA = Period of Acquaintance; Correlations in bold are significant at $p < .05$. Correlations in italics are significant at $p < .10$.

Table F

Partial Correlations between Gratitude and Benefit Illusion, Controlling for Control Variables

Variables	Controlling for				
	Grat	Agr	Ext	POA	Gender
Partial Correlations with Benefit Illusion					
Grat	--	.18	.21	.20	.19
Agr	.05	--	.12	.12	.11
Ext	-.03	-.02	--	.01	.03
POA	.09	.11	.11	--	.13
Gender	.09	.12	.13	.14	--

Note. $N = 202$. Grat = Trait Gratitude; Agr = Agreeableness; Ext = Extroversion; POA = Period of Acquaintance; Correlations in bold are significant at $p < .05$. Correlations in italics are significant at $p < .10$.

Table G

Partial Correlations between Gratitude and Perceived Burden and Burden Illusion, Controlling for Control Variables

Variables	Controlling for				
	Grat	Agr	Ext	POA	Gender
Partial Correlations with Perceived Burden					
Grat	--	-.15	-.19	-.21	-.20
Agr	-.14	--	-.18	-.20	-.20
Ext	-.09	-.08	--	-.12	-.13
POA	.10	.08	.07	--	-.07
Gender	.01	-.02	-.05	-.02	--
Partial Correlations with Burden Illusion					
Grat	--	-.13	-.17	-.18	-.17
Agr	-.13	--	-.17	-.18	-.18
Ext	-.05	-.04	--	-.08	-.09
POA	.05	.03	.03	--	.03
Gender	.00	-.03	-.05	-.03	--

Note. $N = 202$. Grat = Trait Gratitude; Agr = Agreeableness; Ext = Extroversion; POA = Period of Acquaintance; Correlations in bold are significant at $p < .05$. Correlations in italics are significant at $p < .10$.

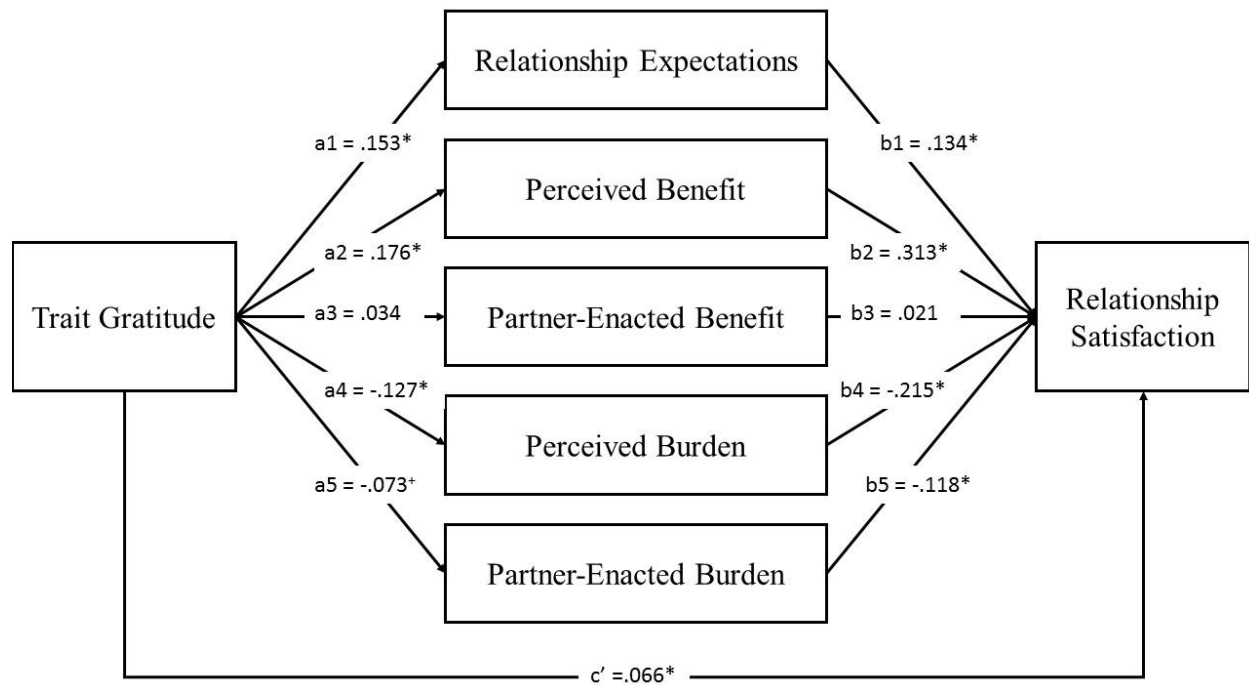


Figure 1. Combined mediation model testing the indirect effects of trait gratitude on relationship satisfaction. Paths with * are significant at $p < .05$. Paths with + are marginally significant at $p < .10$.